

Chemical resistance of GRP enclosures

Ex e GRP enclosure for Zone 1/2/21/22



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This document provides a table detailing the chemical resistance of Glass Reinforced Polyester (GRP) enclosures in black and grey color. GRP is a widely used material in various industries due to its excellent durability, corrosion resistance, and lightweight properties. The performance can vary depending on the chemical environment it is exposed to.

The enclosed table serves as a resource offering insights into how GRP enclosures respond to different chemicals. Understanding this resistance is crucial for ensuring the longevity and safety of GRP enclosures in applications where chemical exposure is a factor. By referencing this information, users can make informed decisions about material selection, helping to minimize the risk of damage, reduce maintenance costs, and extend the service life of GRP enclosures in challenging environments.

Disclaimer

The chemical resistance in this table is a compilation of publicly available data and data we receive from our suppliers and considers only a single chemical exposure. All resistance values are given at ambient temperature unless stated differently. Elevated temperatures will change the rating. The aim of this table is to give a general outline of the best material combinations regarding the impact of various chemicals. However, the customer is responsible for testing of the applicability of the material combinations under real-world exposure conditions. Since BARTEC cannot foresee all expected exposure conditions, we can't be made liable for failures under specific exposure conditions.

The information provided in the table on the “Chemical resistance of GRP enclosures” has been compiled from three reliable sources. The primary data was gathered from the supplier of GRP enclosure and suppliers of EPDM and silicon (VMQ) gaskets. To enhance the accuracy and comprehensiveness of the information, additional data was incorporated from publicly available information of chemical resistance.

By integrating multiple sources, we have created a robust reference that offers valuable insights into the chemical resistance of GRP enclosures across various environments for both options, equipped with EPDM or silicon (VMQ) gasket.

Service Address

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Resistance level

0	The material is stable in the specified temperature range, mechanical properties remain constant.
1	At prolonged exposure times, discoloration and damage of the surface of the part is possible, but mechanical properties remain largely unaffected.
2	At prolonged exposure to the chemical, the material can damage and therefore the use should be avoided. A decrease in mechanical properties is to be expected.
3	The exposure to the chemical destroys the material. Use in environment with the chemical present should be avoided.
*	Information not available

Chemical resistance list

Chemical	Concentration	CAS number	GRP enclosure with EPDM gasket	GRP	EPDM	Silicon	GRP enclosure with silicon gasket
Acetone		67-64-1	3	3	0	3	3
Adipic Acid	water Sol.		1	0	1	0	0
Battery Acid, Sulfuric Acid		7664-93-9	*	*	1	*	*
Ethanol (Ethyl alcohol)		64-17-5	*	*	0	0	*
Ethanol (Ethyl alcohol)	96%	64-17-5	0	0	0	0	0
Ethanol (Ethyl alcohol)	50%	64-17-5	0	0	0	*	*
Aluminium Chloride			0	0	0	1	1
Aluminium Nitrate			0	0	0	1	1
Aluminium Sulfate			0	0	0	0	0
Formic Acid	10%	64-18-6	1	0	1	3	3
Formic Acid	85%	64-18-6	1	1	1	3	3
Ammonia	5%	7664-41-7	3	3	0	1	3
Ammonia	Conc.	7664-41-7	3	3	0	*	*
Ammonium Carbonat		506-87-6	0	0	0	1	1
Ammonium Chlorid		12125-02-9	0	0	0	2	2
Ammonium Fluorid		12125-01-8	0	0	0	*	*
Ammonium Nitrat		6484-52-2	0	0	0	2	2
Ammonium Sulfat		7783-20-2	0	0	0	0	0
Aniline (Aminobenzen)		62-53-3	3	3	1	3	3
ATF-Oile			2	0	2	*	*
Ethylen Glycol		127-21-1	0	0	0	0	0
Bariumcarbonat		513-77-9	0	0	0	*	*
Bariumchlorid		10361-37-2	0	0	0	0	0
Bariumhydroxid	10%	17194-00-2	0	0	0	0	0
Bariumsulfat		7727-43-7	0	0	0	0	0
Bariumsulfid		21109-95-9	1	1	0	0	1
Gasoline (Methanol free)		8006-61-9	3	0	3	3	3
Benzoessäure		65-85-0	3	0	3	3	3
Benzen (Benzol)		71-43-2	3	1	3	3	3
Beer			0	0	0	*	*
Hydrocyanic Acid	10%	74-90-8	0	0	0	*	*
Lead Acetate		301-04-2	0	0	0	3	3
Boric Acid		10043-35-3	0	0	0	0	0
Bromine		7726-95-6	3	3	3	3	3
Hydrobromic Acid	50%	10035-10-6	1	1	1	3	3
Methyl Ethyl Ketone		78-93-3	2	2	1	3	3
Butyric Acid		107-92-6	1	0	1	3	3
Butyl Acetate		123-86-4	2	2	1	3	3
Butanol (Butyl alcohol)			1	0	1	2	2
Chlorine		7782-50-5	3	0	3	3	3
Chloroacetic Acid	10%	79-11-8	1	0	1	2	2
Chloressigsäure	100%	79-11-8	1	1	1		
Chloroform		67-66-3	3	3	3	3	3
Chlorine Water	saturated		1	1	1	3	3
Chromic Acid	5%	7738-94-5	1	0	1	2	2

Chemical resistance list

Chemical	Concentration	CAS number	GRP enclosure with EPDM gasket	GRP	EPDM	Silicon	GRP enclosure with silicon gasket
Diallyl Phthalate (DAP)		131-17-9	0	0	0	*	*
Methylene Chloride (Dichlormethane)		75-09-2	*	2	*	*	*
Ethylen Chloride (Ethylen Dichloride)		107-06-2	*	3	*	3	3
Diesel Oil			3	0	3	3	3
Eisenchlorid		7705-08-0	0	0	0	1	1
Eisennitrat		10421-48-4	0	0	0	1	1
Eisensulfat		10028-22-5	0	0	0	0	0
Acetic Acid	5%	64-19-7	0	0	0	0	0
Acetic Anhydride		108-24-7	3	3	1	1	3
Fetty Acids			2	0	2		
Hydrogen Fluoride		7664-39-3	3	1	3	3	3
Hydrofluoric Acid	10%	7664-39-3	3	1	3	3	3
Hydrofluoric Acid	20%	7664-39-3	3	2	3	3	3
Formaldehyde	10%	50-00-0	1	0	1	1	1
Freon 113		76-13-1	3	1	3	3	3
Glucose		60-99-7	0	0	0	0	0
Ethylene Glycol		107-21-1	*	*	0	0	*
Glycerin			1	0	1	0	0
Hydraulic Oils			3	0	3		
Isopropanol (Isopropyl alcohol)			1	0	1	0	0
Potassium Bicarbonate	10%	298-24-6	0	0	0	*	*
Potassium Chromate		7778-50-9	0	0	0	*	*
Potassium Bromide		03-02-58	0	0	0	*	*
Potassium Chloride		7447-40-7	0	0	0	0	0
Potassium Hydroxide	5%	1310-58-3	1	1	0	2	2
Pottasium Nitrate		7757-79-1	0	0	0	0	0
Potassium Sulfate		7778-80-5	0	0	0	0	0
Calcium Chloride		10043-52-4	0	0	0	0	0
Calcium Hydroxide	20%	1305-62-0	0	0	0	2	2
Calcium Nitrate		10124-37-5	0	0	0	1	1
Calcium Sulfate		10101-41-4	0	0	0	*	
Aqua Regia		8007-56-5	3	3	2	3	3
Cresol (Methyl Phenol)			3	3	3	3	3
Copper Chloride		1344-67-8	0	0	0	0	0
Copper Nitrate		3251-23-8	1	0	1	*	*
Copper Sulfate		7755-98-7	0	0	0	0	0
Magnesium Carbonate			*	0	*	*	*
Magnesium Chloride		7786-30-3	0	0	0	0	0
Magnesium Nitrate			*	0	*	*	*
Magnesium Sulfate		77570-88-2	0	0	0	0	0
Maleic Acid	40%		3	0	3		
Methanol (Methyl alcohol)			2	2	0	1	2
Methyl Ethyl Ketone		78-93-3	1	1	1	3	3
Methyl Dichloride (Dichloromethane)			*	*	*	3	
Lactic Acid	Conc.	50-21-5	0	0	0	1	1

Chemical resistance list

Chemical	Concentration	CAS number	GRP enclosure with EPDM gasket	GRP	EPDM	Silicon	GRP enclosure with silicon gasket
Styrene (Vinylbenzene)		100-42-5			3	3	
Motor Oil			3	0	3	3	3
Sodium Acetate		127-09-3	0	0	0	3	3
Sodium bicarbonate			0	0	0	*	*
Sodium Bisulfate		7681-38-1	0	0	0	0	0
Sodium Bromide		7647-15-6	0	0	0	*	*
Sodium carbonate	10%		0	0	0	*	*
Sodium Chloride		7647-14-5	0	0	0	0	0
Sodium Chlorite	3%	7758-19-2	0	0	0	*	*
Sodium Cyanide	10%	143-33-9	0	0	0	0	0
Sodium hypochlorite	10%		1	0	1	1	1
Sodium hydroxide	5%	1310-73-2	1	1	0	*	*
Sodium hydroxide	Conc.	1310-73-2	2	2	0	*	*
Sodium Nitrate		7631-99-4	0	0	0	3	3
Sodium nitrite			0	0	0	*	*
Sodium Silicate		1344-09-8	0	0	0	0	0
Sodium Sulfite		7757-83-7	0	0	0	0	0
Sodium Thiosulfate	30%	7772-98-7	0	0	0	0	0
Sodium hydroxide		1310-73-2	*	*	0	1	*
Oleic Acid		112-80-1	0	0	0	*	*
Oxalic Acid		144-62-7	0	0	0	1	1
Carbolic Acid (Phenol)		108-95-2	3	3	1	3	3
Phosphoric Acid	10%	7664-38-2	0	0	0	2	2
Nitric Acid	10%	7697-37-2	1	0	1	1	1
Sulfuric Acid	10%	7664-39-9	1	1	0	0	1
Soap			*	0	*	*	*
Silver Nitrate		7761-88-8	0	0	0	0	0
Stearic Acid		57-11-4	2	0	2	2	2
Styrene (Vinylbenzene) monomer		100-42-5	3	1	3	3	3
Test gasoline			*	0	*	*	*
Tetrachloromethane			3	1	3	3	3
Tetrahydrofuran (THF)			3	3	2	3	3
Toluen (Toluol)		108-88-3	3	1	3	3	3
Trichlorethylene (TCE)		79-01-6	3	2	3	3	3
Wasser		7732-18-5	0	0	0	0	0
Sodium Metasilicate	5%	6834-92-0	*	1	*	*	*
Hydrogen peroxide	3%	7722-84-1	0	0	0	0	0
Hydrogen peroxide	30%	7722-84-1	0	0	0	0	0
Tartaric Acid		133-37-9	1	0	1	0	0
Xylen (Xylol)		1330-20-7	3	1	3	3	3
Zinc Chloride		7646-85-7	0	0	0	0	0
Zinc Sulfate		7733-02-0	0	0	0	0	0
Tin Chloride (Stannous Chloride)		7772-99-8	0	0	0	*	*
Citric Acid		77-92-9	0	0	0	0	0

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